

REMARKS

Claim 24 is amended to more particularly point out that the proof mass surrounds a hub on the floor of the cavity and has a peripheral region adjacent the first fingers, that one stiction bump is located on the floor of the cavity that surrounds the hub, that a second stiction bump is located on the floor of the cavity directly beneath the peripheral region of the proof mass, and that an annular-shaped central region of the cavity is free of stiction bumps, features originally recited in claims 28 and 29, now cancelled.

Claim Rejection under 35 USC § 103

Claims 24-27 were rejected under 35 U.S.C. § 103 as unpatentable over United States Patent No. 6,393,914, issued to Zarabadi et al. in 2002, in view of either United States Patent No. 5,393,171, issued to Biebl in 1999, or United States Patent No. 5,652,384, issued to Henrion et al. in 1997.

Applicants' invention relates to a microelectromechanical device that includes a proof mass 14 supported within a cavity 20 and stiction bumps 36 located on the floor of the cavity, see Fig. 3. The accelerometer in Zarabadi et al. also features a proof mass 12 supported within a cavity 34, fingers cantilevered outward from the proof mass, see Fig. 2. However, as acknowledged in the Office Action, Zarabadi et al. does not show stiction bumps located on the cavity floor, a key feature of Applicants' invention.

The rejection points to Biebl to make up the deficiency. Referring to Fig. 1, Biebl shows spikes 3 located on a cavity floor underneath part 2. However, spikes 3 in Biebl are formed by an etching process wherein the material is etched out through apertures 4, see Figs. 7-9 and col. 4, lines 5-18. Referring to Figs. 10 and 11, the spikes in Biebl must necessarily be located at interstices in the etching pattern. This inherently limits the location at which the spikes may be formed. In Applicants' device, the stiction bumps are disposed surrounding the hub and near the periphery, spaced apart by a bump-free region. Because of the process limitations, Biebl does not suggest an etching pattern that is suited for locating stiction bumps at the hub and periphery, as in Applicants' arrangement. Thus, even if Biebl was applied to the device in Zarabadi et al., it would not point to the bump arrangement that characterizes Applicants' device.

Nor does Henrion et al. point to the arrangement of stiction bumps in Applicants' device. Referring to Fig. 3, Henrion et al. describes a sensor structure that includes travel stops 45 formed on covers 12 and 14, col. 5, lines 16-23. The central feature in Henrion et al. is a mass 16 within a frame 18. However, the sensor in Henrion et al. does not include a hub, or a proof mass surrounding a hub, as in Applicants' device. Thus, Henrion et al. cannot show stiction bumps on a cavity floor beneath a proof mass and surrounding the hub. Further, Henrion et al. cannot point to stiction bumps located beneath the periphery of a proof mass. Thus, even if applied to Zarabadi et al., the stops in the covers in Henrion et al. do not point the practitioner to the arrangement of stiction bumps on the cavity floor beneath a proof mass found in Applicants' invention.

Claim 24 is directed to Applicants' microelectromechanical device that includes a proof mass supported within a cavity and stiction bumps located on the floor of the cavity beneath the proof mass. In accordance with the claim, the stiction bumps surround the hub and are directly beneath the peripheral region of the proof mass. The device in Zarabadi et al. does not provide stiction bumps on the cavity floor. Because of the process limitations in Biebl, the practitioner is not lead to arrange the stiction bumps about the hub and at the periphery as called for in the claim. The stops in Henrion et al. are located in covers opposite a central mass, and do not suggest stiction bumps in a cavity beneath a supported proof mass. Thus, even when read together, Biebl and Henrion et al. do not lead the practitioner to the recited arrangement of stiction bumps, and so do not teach or suggest Applicants' device set forth in claim 24.

Claims 25-27 are dependent upon claim 24 and so not taught or suggested by the references at least for the reasons set forth with regard to that claim.

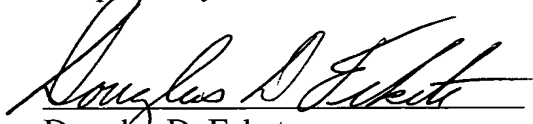
Accordingly, it is respectfully requested that the rejection of the claims based upon Zarabadi et al., Biebl, and Henrion et al. be reconsidered and withdrawn, and that the claims be allowed.

Conclusion

It is believed, in view of the amendments and remarks herein, that all grounds of rejection of the claims have been addressed and overcome, and that all claims are in condition for allowance. If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,

A handwritten signature in cursive script, reading "Douglas D. Fekete", written over a horizontal line.

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